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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/780,737	02/09/2001	Chris Blackson	KDS.P0001	6932

7590 10/28/2003

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EXAMINER

LIU, MING HUN

ART UNIT	PAPER NUMBER
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2675

DATE MAILED: 10/28/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/780,737

Applicant(s)

BLACKSON ET AL.

Examiner

Ming-Hun Liu

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-2, 4-5 and 15-18 are rejected under 35 U.S.C. 102(e) as being unpatentable by US patent 6,320,563 to Yang et al.

In reference to claims 1 and 2, it is clear that Yang discloses a method of addressing a bistable liquid crystal material having incremental reflectance properties disposed between opposed substrates, wherein one substrate has a first plurality of electrodes deposited thereon facing the other substrate which has a second plurality of electrodes disposed thereon (figure 1 and column 2, lines 47-49), the intersection of the first and second plurality of electrodes forming a plurality of pixels (column 2, line 51). The addressing method includes applying a predetermined number of pulses to the first plurality of electrodes; applying a like number of the predetermined number of pulses to the second plurality of electrodes, and each of the predetermined number of pulses having a different frequency, a predetermined number of pulses applied in a set period of time (column 2, lines 52-58).

In reference to claim 4, Yang discloses that different frequency pulses are applied to the first and second plurality of electrodes at the same time (column 4, lines 9-15).

Referring to claim 5, Yang discloses that the number of predetermined number of pulses correspond to a different number of reflectances (column 4, lines 20-23).

Claim 15 is rejected on the same grounds as the rejection of claim 1.

Claim 16 is rejected on the same grounds as the rejection of claim 2.

Claim 17 is rejected on the same grounds as the rejection of claim 4.

Claim 18 is rejected on the same grounds as the rejection of claim 5.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Yang and US Patent 5,748,277 to Huang et al.

In reference to claim 3, Yang does not explicitly disclose a preparation pulse to the first and second plurality of electrodes prior to said applying steps, however such practice is very common in driving cholesteric reflective displays. As Huang explains on column 3, lines 42-46, a preparation pulse is necessary prepare the display for driving. It would have been obvious to one skilled in the art to incorporate a preparatory pulse in Yang's invention because of its extreme conventionality and also to ensure proper functionality in the display.

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5. Claims 6, 11 and 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yang (6,320,563) in view of US Patent 6,268,839 to Yang et al and further in view of US Patent 6,094,187 to Jones et al.

In reference to claim 6, Yang (6,320,563) fails to discuss in detail to control the gray scale in the display.

In the other Yang patent (6,268,839), Yang describes the use of time modulation techniques to control the gray scale of the display (column 2, lines 30-33). It is well understood in the art that time modulation is a method of controlling the gray scale and Yang (6,268,839) makes it apparent that time modulation methods can also be applied for bistable LCD displays. Yang (6,268,839) describes the time modulation specifics required to acquire the desired gray scale value such as a modulating with plurality of pulses and different phase steps (column 7, lines 27-30).

Yang however does not go into the specifics of where a number of reflectances at each pixel is equal to two raised to the number of said predetermined number of pulses less one, or less a constant value. Such a temporal modulation is also well known in the art. As disclosed in Jones, temporal modulation using a binary weighted system is common practice in obtaining the gray scale in pixels (column 2, lines 51-54 and lines 61-64). In addition, deviations from the binary increment can be made to accommodate the different levels of desired gray scale. It would have been obvious to one skilled in the art to implement the binary weighting system to Yang's (6,320,563) invention due its extremely conventionality, simplicity of timing arrangement and capability to span desired gray scales levels in a visual display system.

Claim 11 is rejected on the same grounds as the rejection of claim 6.

Claims 13 and 14 are elaborations of the limitation outlined in claim 6 and are inherent to the method and technology.

6. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yang (6,320,563) in view of Huang “Unipolar Implementation for the Dynamic Drive...”

In reference to claims 7 and 8, bipolar and unipolar signals are commonly used in the art, but Yang never explicitly states the type that he uses. Huang teaches in his disclosure that both signal types (figure 4b) are commonly used to drive cholesteric displays. It would have been obvious to one skilled in the art to use these two types of signals because of their extreme conventionality. Bipolar signals, as Huang mentioned in paragraph 2, are the industry norm and offered as common form of implementation for displays using this technology. Huang also teaches that unipolar signals can be used to reduce the voltage swing range, thus reducing the cost of production of future products.

7. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yang (6,320,563) in view of US Patent 6,133,895 to Huang.

In reference to claim 9, Yang does not explicitly disclose a method wherein the number of predetermined number of pulses is equal to a number of incremental reflectances.

However Yang (6,268,839) does describe in column 2, lines 4-9 a general drive scheme with a series of voltage pulses that produced various levels of reflectances.

It would have been fitting to implement Huang’s gray scale method (column 2, lines 37-40) where distinct reflectance states can be reached in correspondence to each pulse. It is well known in the art, that the area integrated under the pulse is associated with the gray scale value

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of the pixel. It would have been obvious to implement a method similar to Huang's to achieve various gray scale reflectances due to a larger waveform area.

8. Claims 10, 12 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yang (6,320,563) in view of Yang (6,268,839) and further in view of US Patent 6,133,895 to Huang.

In reference to claim 10, Yang (6,268,839) describes variations in variables T and  $T_{off}$  where "those skilled in the art will appreciate, the  $T_{off}$  time period is adjusted to obtain the desired gray scale" (column 6, lines 38-40). Yang continues on column 6, lines 31-46 by stating that these drive period can be adjusted to create incremental reflectances that correspond to a like number of drive periods, with each drive period having a different length of time than all other said drive periods.

Claim 12 is rejected on the grounds outlined for the rejections of claims 10 and 3.

Claim 19 is rejected on the same grounds as the rejection of claim 9.

### *Conclusion*

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patent 5,644,330 to Catchpole et al.: Cholesteric display with row and column electrodes having the same number of pulses (fig. 5).

US Patent 6,362,835 Urbanus et al: Pulse width modulation, binary signal.

US Patent 5,196,839 to Johary et al: Pulse with modulation

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US Patent 6,072,455 to Matsui: LCD with row and column having the same number of pulses.

US Patent 6,094,187 to Jones: PWM for gray scale.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ming-Hun Liu whose telephone number is 703-305-8488. The examiner can normally be reached on Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Mancuso can be reached on 703-305-3885. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4750.

Ming-Hun Liu

September 15, 2003



**STEVEN SARAS**  
**SUPERVISORY PATENT EXAMINER**  
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